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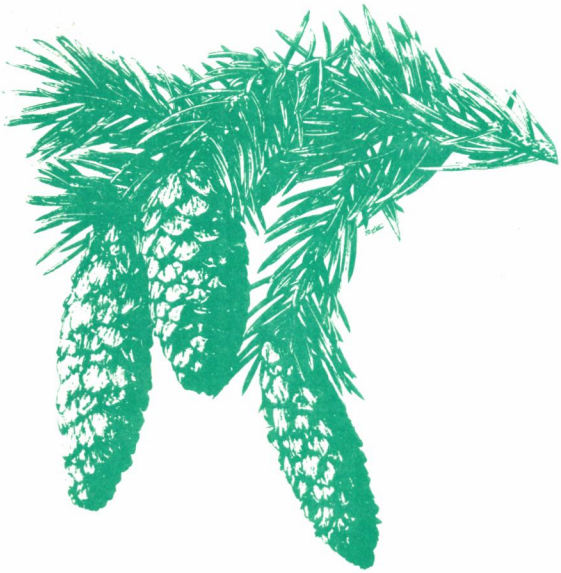
TREES

NATIVE TO THE FORESTS OF

COLORADO AND WYOMING



U.S. Department of Agriculture

Forest Service

Rocky Mountain Region

FOREWORD

This pamphlet makes no pretense to describe technically the species of trees presented. Rather, it is intended to aid the layman -- especially school children -- in recognizing certain trees native to the forests of Colorado and Wyoming -- covering 21 million and 9 million acres, respectively.

Common names of trees vary with localities -- even within localities. The names given here, however, are those used by the United States Forest Service and are probably those in most general use. Some knowledge of the individual tree species should create a greater appreciation of our mountain forests.

For trees are more than so much standing timber: They protect the watersheds from rapid run-off after heavy rains, and from erosion; they retard the melting of snow. These factors are vitally important in a region so dependent upon water for successful farming. And our mountains, without forest cover, would offer far less recreational or scenic value.

No one who knows well, and loves the outdoors will be careless with fire in the forest. He will obey the first rules of the sportsman: put out the campfire; and never toss away a still-lit cigar, cigarette, match, or burning ash from a pipe.

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Illustrations are taken from MANUAL OF TREES OF NORTH AMERICA, by C. S. Sargent; and from U. S. Department of Agriculture Bulletins No. 207, The Cypress and Juniper Trees of the Rocky Mt. Region, No. 327, The Spruce and Balsam Fir Trees of the Rocky Mt. Region, and No. 680, Miscellaneous Conifers of the Rocky Mt. Region -- all by George B. Sudworth.

EVERGREEN TREES

The Evergreen Trees, which are better called the Conifers, and which are known to many people simply as "Pines" are really composed of pines, spruces, firs, Douglas-fir, junipers, and cedars.

Furthermore, there are several kinds of each of these. They are not hard to tell apart as the leaves (needles) and cones are usually quite different. They can be distinguished by the following key:

KEY TO THE CONIFERS

Needles gathered together at the base in clusters of 2-5 in a little sheath that often wears off after the first year. Cones with thick woody scales. Seeds mature in two seasons.

_____ PINES (Pages 4-9).

Needles scattered over the twigs singly, sharp-pointed, four-sided, leaving twigs rough like a grater when they fall off; cones pendent with parchment-like scales, falling off the tree whole.

_____ SPRUCES (Pages 9-12).

Needles blunt, flat, leaving smooth round scars when they fall off. Cones noticeable in late summer; cones erect (unlike cones of other conifers) on the upper branches of the tree, falling to pieces at the first frost instead of dropping off the tree whole; buds blunt-pointed and pitchy.

_____ FIRS (Pages 12-14).

Cones conspicuous, persistent, pendent, scattered over entire crown, falling off the tree whole;

three-pronged tongues stick out between the cone scales; buds sharp-pointed, shiny, smooth, red-brown.

—— DOUGLAS-FIR (Page 15).

Needles reduced to green scales attached closely to twigs or spreading and only about 1/2-inch long. Cones reduced to small bluish berries.

—— JUNIPER (Pages 16-17).

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P I N E S

The native pines in this region are composed of the following species: Bristlecone, limber, white-bark, lodgepole, pinyon, and ponderosa. They may be distinguished as follows:

1. Needles in cluster of five.

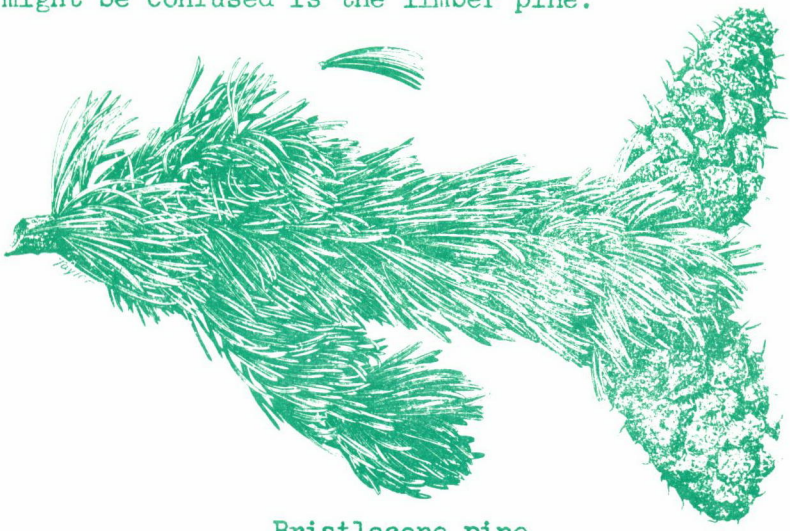
BRISTLECONE PINE*
(Pinus aristata)

Needles 1-1½ inches long, cones with long, slender, sharp bristles on the tips of the scales, which give the tree its name. This pine occurs up toward timber line and usually on rocky ridges. Needles almost always covered with tiny specks of pitch.

Sometimes called "foxtail pine" because of the long, slender twigs clothed with needles which

*Does not occur in Wyoming or northern Colorado.

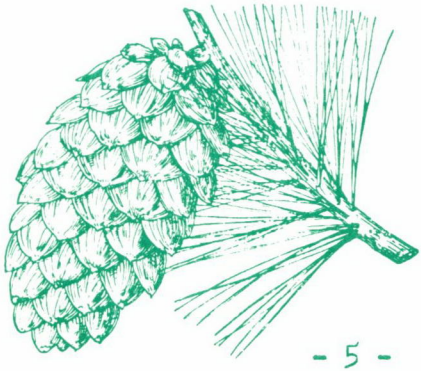
resemble the brush of a fox. This pine is used mainly for cordwood. The only tree with which this might be confused is the limber pine.



Bristlecone pine

LIMBER PINE
(Pinus flexilis)

Needles in cluster of five but longer -- $1\frac{1}{2}$ to 3 inches long -- and more flexible than those of the bristlecone pine. May be distinguished by its fine almost silky needles. Large-sized seed in cones 3-10 inches long. Can grow under almost any condition. Used mainly for cordwood and ties.



Limber pine

WHITEBARK PINE*
(Pinus albicaulis)

Needles stout and rigid, slightly incurved, clustered at the ends of the branches, $1\frac{1}{2}$-$2\frac{1}{2}$ inches long. This tree sometimes has been confused with limber pine. The two species can be readily identified by differences in their cones; whitebark pine cones are dark purple and remain closed at maturity, $1\frac{1}{2}$-3 inches long, are borne on the stems without a stalk, while limber pine cones are green (rarely purple) and open at maturity, 3-10 inches long and borne on short stalks. The bark of whitebark pine has a chalky-white color. Several stems occur from same base.

Whitebark pine trees occur in clusters of 3 to 7. It is found at the higher altitudes in Wyoming, while limber pine grows at the lower elevations of tree growth with some overlapping in the intermediate zone. Suitable for ties and cordwood.

Whitebark pine

*Does not occur in Colorado.

2. Needles in clusters of two or three.

PONDEROSA PINE
(Pinus ponderosa)

This tree was formerly known as western yellow pine. Easily distinguished from all other native conifers of this region, as the needles are 3-7 inches long and occur in clusters of 2 or 3. Cones 3-5 inches long. Cone scales armed with spines.

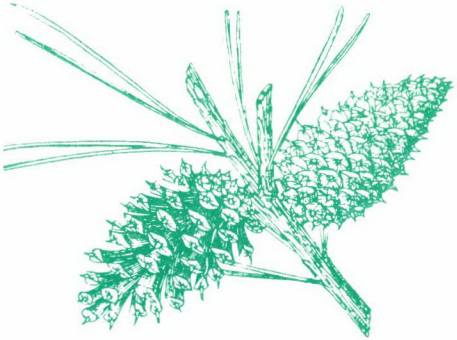
Ponderosa pine

When young, the bark is dark and the tree is often called "Black Jack" pine. When older, the bark gets yellowish and occurs in thick plates, and these older trees are often locally called yellow pine. A valuable tree for lumber of almost any description.

3. Needles usually in clusters of two.

LODGEPOLE PINE
(Pinus contorta var. latifolia)

A slender tree used by Indians for lodgepoles when young. Apt to occur in thick stands. Distinguished by the yellow-green color of the foliage, by thin bark usually not more than 1/4-inch thick, by needles 1½-2 inches long, and by small, hard, one-sided cones 1½-2 inches long, which cling to the branches for years without opening or dropping their seeds.



Lodgepole pine

Used for lumber and especially valuable for mine props and railroad ties. The only species native to this region with which this might be confused is the pinyon.

PINYON
(Pinus edulis)

Usually a short scrubby tree of the lower slopes commonly found in mixture with junipers. Could only be confused with lodgepole pine but differs greatly in that it is only found in lower altitudes, and its cones open readily in the fall and yield large seeds which are the common pinyon nuts of trade, while the lodgepole pine cones usually remain closed and contain small seeds.

Pinyon

Needles about 3/4-1½ inches long, cones small and rough, each cone bearing only a few seeds, scales few and not armed. Used for fuelwood, fence posts, and sometimes for mine props.

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SPRUCES

Spruce can be distinguished by the needles being attached singly on all sides of the twigs and, when breaking off, leaving the twig rough like a grater. Needles four-sided, stiff, and sharp to the touch in contrast with the softness of the fir needles. Cones hang down, and have parchment-like scales.

BLUE SPRUCE
(Picea pungens)

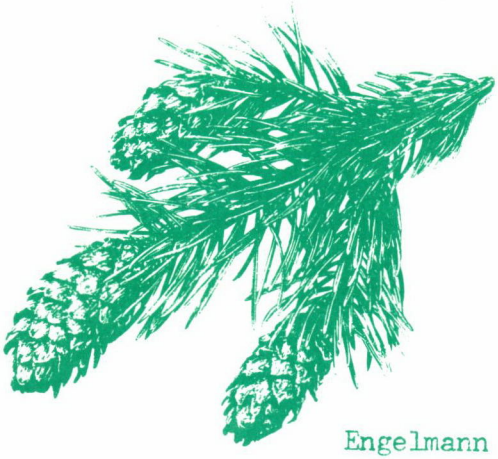
This species will be confused only with the Engelmann spruce. Can be distinguished from Engelmann spruce because its cones are usually over 3 inches long, whereas those of the Engelmann are less than 2 inches. Also, the new growth twigs are smooth on the blue spruce while they are finely hairy on Engelmann. Color varies from silver to green.

Blue spruce

Blue spruce usually grows at lower altitudes than Engelmann, oridinarily along canyon bottoms below 9,000 feet elevation. Blue spruce is often called water spruce due to its habit of growing along creeks or ponds. On the main trunk of the blue spruce there are always a number of tiny twigs only a few inches long. These are in addition to and usually between the main whorls of branches. These twigs keep pushing out on the trunk for many years, and after the stem becomes large and the twigs die they give it an unkempt, unbrushed appearance. The bark on mature trees is furrowed, while on Engelmann it is scaly. Wood is sometimes used for lumber and is suitable for paper pulp. The tree is widely used for ornamental planting.

ENGELMANN SPRUCE
(Picea engelmanni)

Cones less than 2 inches long. Trees often in dense stands of heavy timber usually above 8,500 to 9,000 feet altitude. The main trunk, in contrast to blue spruce, is smooth and clean.



Engelmann spruce

Bark begins to peel off at an early age in thin flakes. When older, bark becomes red-brown and scaly. The wood is valuable for paper pulp manufacture.

BLACK HILLS SPRUCE
(Picea glauca var. glauca)

This tree is commonly known as Black Hills spruce. It is found in northern Wyoming and in the Black Hills

Black Hills spruce

region where it is the only native spruce. It does not occur naturally in Colorado. Western white spruce grows along streams and on steep, cool, moist slopes. The moderately sharp-pointed, four-sided needles are scattered over the twigs singly. New growth twigs are smooth. Cones about 1½ to 2½ inches long. Tree is very branchy and has a long pyramidal crown.

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F I R S

Needles blunt and fairly soft to the touch, leaving flat, round scars after falling off, in contrast to short stub left by spruce needles on twigs. Cones erect, unlike those on other conifers, and not conspicuous; buds blunt and pitchy. Blisters containing liquid pitch or balsam scattered over the smoother bark. The trees are usually found in association with the spruces.

ALPINE FIR

(Abies lasiocarpa)

Cones purple, scales of cones fall off, (see description under white fir - Page 14); leaves about 1 inch long, trees with sharp spire-like crown. Bark smooth, grayish white, becoming furrowed only when tree approaches a foot in diameter. Needles tending to turn upward so that the foliage of a particular branch appears flattened and as though no leaves were attached to the lower sides of the twigs.

Trees usually in company with Engelmann spruce, though sometimes in pine stands. Found at high altitudes similar to Engelmann spruce. Wood white, soft, and brittle, used for rough construction and boxes but inferior to Engelmann spruce.

Alpine fir

This tree might be confused in appearance only with cork fir (see below) or with Douglas-fir, but can be distinguished from the latter as the alpine fir cones are erect and on uppermost branches, instead of suspended and scattered over entire crown. Needles of fir are flat until point of connection with twig. Needles of Douglas-fir are narrowed before joining twig, giving them a tiny stem-like appearance.

CORKBARK FIR*
(Abies lasiocarpa var. arizonica)

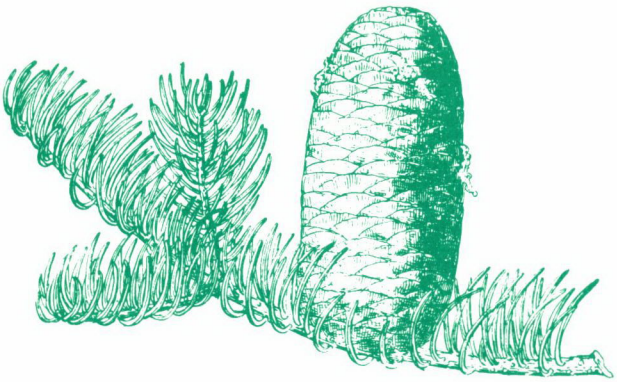
The trunk and crown forms, and the cones and leaves of the corkbark and alpine fir are so alike in general appearance that the two cannot be readily distinguished by these features. The cone scales of the corkbark fir are of a different form from those of the alpine, and the bracts borne on the backs of the scales also differ materially in form. These distinctions, however, are not easily made.

*Does not occur in Wyoming.

The ashy-gray, soft, corky trunk bark of the cork-bark fir alone readily distinguishes this tree from the alpine fir.

WHITE FIR
(Abies concolor)

Needles longer than those of the alpine fir, being often 2 inches or more long. This species grows at lower altitudes than alpine fir, often being found on hillsides with ponderosa pine and Douglas-fir, and in the canyons with blue spruce. Crown of tree not spire-like as in alpine fir.



White Fir

Foliage pale pea-green, much lighter than alpine. Usually bears on the uppermost twigs a cluster of large erect cones, pale-green on some trees, but more often a deep and rich purple. When the cones of the true firs, both white and alpine, ripen, the scales fall off leaving the stalks or cores of the cones still standing upright, and strongly suggestive of Christmas candles in the tops of the trees. Wood similar to that of alpine fir.

DOUGLAS-FIR

(Pseudotsuga menziesii)

Neither a true fir nor a spruce, but somewhat similar to the hemlock. Cones conspicuous, they hang down and are easily identified by the three-pronged tongues which stick out between the cone scales. Cones often on all branches to near base of the crown while spruce and fir cones are mainly in very top of tree. Leaves narrowed before joining twig.

Douglas-fir

At the end of the twig there is usually one, though sometimes more than one, cone-shaped, sharp-pointed bud, brownish-red in color. After the tree is 8 or 10 feet high, the dry cones, light and papery in texture, can always be found on the branches.

Occurs at 8,000 to 9,000 feet, but also at lower elevations in cool northerly aspects. Wood is especially good for bridge timber, railroad ties, and construction wood, and is of high value.

JUNIPERS

Cones reduced to small bluish berries. Needles reduced to little green scales on the twigs, though sometimes spreading and about $\frac{1}{2}$ inch long, making twigs very prickly to the touch. Usually found below 9,000 feet and often mixed with pinyon.

ROCKY MOUNTAIN JUNIPER
(Juniperus scopulorum)

Berries about the size of peas, bark scaly, twigs slender and graceful, heartwood red. Rarely grows straight or tall enough for lumber, but valuable for fence posts as it is very slow to decay. Most frequently found in open stands on hillsides, usually in rather dry situations. Often confused with Utah and one-seed juniper but can be distinguished from those as berry usually has two seeds and is bluish or black, covered with a bluish bloom. Berries take two years to mature.

Rocky Mountain juniper

UTAH JUNIPER and ONE-SEED JUNIPER*
(Juniperus utahensis and Juniperus monosperma)

The two species are very similar and no distinction will be made here between them. Berries vary in size but usually contain only one seed. Twigs stiff and stout, heartwood brown. Species often confused with Rocky Mountain juniper; distinguished because berries have usually but one seed, and under the bluish bloom which may be rubbed off, a reddish or copper color. Berries of one-seed juniper require only one year to mature; those of other two species take two.

One-seed juniper

*Does not occur in Wyoming.

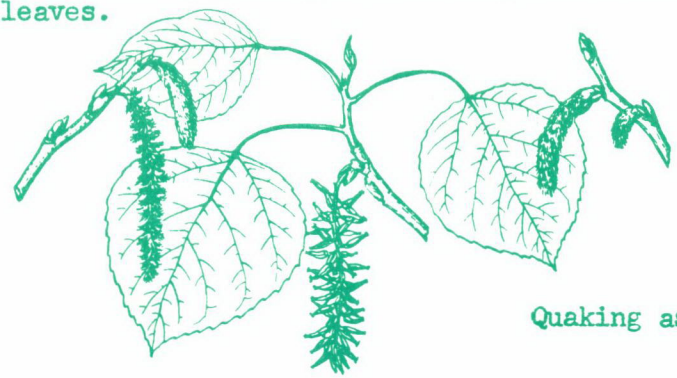
Some of the More Common

HARDWOOD or DECIDUOUS TREES

The only hardwood in this region, that forms a stand of merchantable timber is the quaking aspen.

QUAKING ASPEN
(Populus tremuloides)

Heart or delta-shaped leaves with fine sawtooth edges; light green, turning yellow in the fall. Often distinguished by quaking or trembling characteristics of leaves.



Quaking aspen

Bark whitish, turning gray and darker when older, sometimes furrowed and divided into broad flat ridges. Wood light-brown with nearly white sapwood; used for box boards, lettuce crates, etc.

PLAINS COTTONWOOD
(Populus sargentii)

The larger, coarser, more deeply toothed leaves of the cottonwood distinguish it from the quaking aspen; also the larger size of the tree, and the coarser bark, usually heavily ridged on the main trunk of all but very young trees.

In addition to this there are two other species of cottonwood which are found along canyon bottoms; but these can be identified easily by their distinctive leaves.

Plains cottonwood

NARROWLEAF COTTONWOOD
(Populus angustifolia)

Leaves narrow, almost like willow. Tree can be told by its similarity of bark and general appearance to the cottonwood or aspen, and distinguished from them by its narrow leaves.

Narrowleaf cottonwood

LANCELEAF COTTONWOOD
(Populus acuminata)

This species can be recognized as a cottonwood by its general appearance which is similar to the others of this family, but can easily be distinguished from the rest of the family by the size of the leaves. Broader than the narrowleaf cottonwood but much more pointed, and not as wide as the other species of this family in this vicinity.

Lanceleaf cottonwood

BOXELDER
(Acer negundo)

Leaves compound, 3 to 5 on a single stalk, edges coarsely toothed above the middle. Tree low and freely branched, 25 to 40 feet high, and up to 12 inches in diameter; bears small yellow-green petalless flowers; staminate and pistallate flowers on separate trees. Seed, ripening in autumn, are paired and winged. Bark pale-gray.

Boxelder

ROCKY MOUNTAIN MAPLE
(Acer glabrum)

Usually a shrub but often 20 to 30 feet high. Simple, 3-lobed, smooth leaves with toothed edges. Leaves 1 to 2 inches long, opposite each other. Paired winged seed, wings 3/4-7/8 inch long, often rose-colored in summer. Bark thin smooth light-gray colored.

Rocky Mountain maple

WESTERN CHOKECHERRY
(Prunus virginiana var. demissa)

More often a shrub 3 - 15 feet high. Clustered flowers and fruit, black when ripe. Alternate finely toothed leaves sharply pointed. Bark, leaves, and seed bitter.

Western chokecherry

GAMBEL OAK
(Quercus gambelii)

Usually tall shrubs or small trees, often growing in dense thickets. Leaves are round-lobed; acorns, small. Gambel oak is the only oak in southwestern Colorado. It is abundant in Huerfano County, Colorado, and is the largest of Colorado oaks.

Gambel oak

WILLOWS
(Salix)

The common shrub of creek bottoms. Usually narrow, sharp-pointed leaves. Some willows attain a diameter of 4 inches and a height of 15-25 feet. Buds covered by a single scale or covering. (There are too many species of willows to include all in this pamphlet. No illustration given).

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If you value these trees and would like to help preserve them, you will always be careful with your campfire, matches, and smoking materials. Please ask your friends to do the same.

Prevent Forest Fires — It Pays

MULTIPLE USE MANAGEMENT

GPO 834353